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ABSTRACT

Recent research has suggested that individual differences in the personality measure of hardiness are related to health status. This 3-year longitudinal study with full-time employees (N=229) investigated the association between stress, two separate measures of personality hardiness, and objective (absenteeism due to illness verified from personnel records) and subjective (self-reported hospitalization due to injury/illness and psychological well-being) health measures. Using stepwise multiple regression analysis, stress, but not hardiness, significantly predicted absenteeism when controlling for relevant demographic variables. Stress and the alternative measure of hardiness also significantly predicted psychological well-being. Finally, the alternative measure of hardiness, but not any of the original personality hardiness scales, predicted self-reported hospitalization for injury/illness over the 3-year period. Little evidence for the predictive validity of the Kobasa personality hardiness scales or overall hardiness score existed with either objective or subjective health outcomes in this study. However, the alternate measure of hardiness, but not the original hardiness scales, was significantly associated with well-being in this prospective study. These findings suggest that the current conceptualization and measurement of the original hardiness construct should be re-evaluated. (Author/ABL)

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HARDINESS AND HEALTH STATUS:

RESULTS OF A 3-YEAR LONGITUDINAL STUDY

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Abstract

This 3-year longitudinal study with 229 full-time employees investigated the association between stress, two separate measures of personality hardiness, and objective (absenteeism due to illness verified from personnel records) and subjective health measures (self-reported hospitalization due to injury/illness and psychological well-being). Using stepwise multiple regression analysis stress, but not hardiness, significantly predicted absenteeism when controlling for relevant demographic variables. Stress and the alternative measure of hardiness also significantly predicted psychological well-being. Finally, the alternate measure of hardiness, but not any of the original personality hardiness scales, predicted self-reported hospitalization for injury/illness over the 3 year period. Little evidence for the predictive validity of the Kobasa personality hardiness scales or overall hardiness score existed in with either objective or subjective health outcomes in this study. However, the alternate measure of hardiness, but not the original hardiness scales, was significantly associated with well-being in this prospective study. These findings suggest that the current conceptualization and measurement of the original hardiness construct should be re-evaluated.

HARDINESS AND HEALTH STATUS:
RESULTS OF A 3-YEAR LONGITUDINAL STUDY

INTRODUCTION

In a recent series of articles, Kobasa and others (Ganellen & Blaney, 1984; Kobasa 1979, 1982a, 1982b; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, & Kahn, 1982d; Kobasa, Maddi & Puccetti, 1982d; Kobasa, Maddi, & Zola, 1983; Kobasa & Puccetti, 1983; Nowack, 1986; Nowack & Hanson 1983; Pierce & Molloy, 1990; Hillis & Norvell, 1991; Weibe & McCallum, 1986) have suggested that the personality characteristic hardiness-a combination of commitment, control, and challenge-decreases or buffers the illness effects of stressful life events. In general, hardy individuals may experience less illness and psychological distress because they are able to transform work and life events cognitively to make them less stressful.

Recent research has suggested that individual differences in the personality measure of hardiness are related to health status (cf. Kobasa 1979b). Although Kobasa and her colleagues have offered numerous studies supporting the mediating role of personality hardiness with health status, recent criticisms of the hardiness construct and measures have emerged including (1) the questionable psychometric properties of some of the hardiness scales; (2) the treatment of the construct as a unitary, rather than multi-dimensional, phenomenon; (3) the frequent use of inappropriate statistical techniques; (4) little empirical evidence that hardiness does, in fact, have a buffering effect; and (5) the adequacy of existing research as evidence for hardiness effects or relationship with other psychosocial variables such as negative affectivity (cf., Funk & Houston, 1987; Hull, Van Treuren, & Virnelli, 1987; Ganellen & Blaney, 1984; Nowack, 1989).

From a review of the published literature, it might appear that Kobasa and her colleagues have conducted numerous studies supporting personality hardiness as a stress moderator. However, previous research on hardiness is particularly difficult to summarize for several reasons, particularly in light of several published studies by Kobasa based upon same data set (cf. Hull et al., 1987) and the counting of near-significant interactions as evidence of hardiness as a stress moderator (e.g., Kobasa & Puccetti, 1983; Kobasa et al., 1983). In addition, many findings in the hardiness literature might be interpreted differently in light of inconsistencies in the way hardiness subscales have been used or even measured from study to study (e.g., Kobasa 1982a, 1982b). The previous studies also vary as to whether they use an overall hardiness score in their analyses or scores from separate subscales (e.g., Ganellen et al., 1984; Schmied & Lawler, 1986).

Overall, the empirical evidence that the personality hardiness construct operates as a stress buffer is weak, at best. However, except for a recent study by Schmied and Lawler (1986), most research suggests that hardiness has main effects on health status. In their study of working women, Schmied et al., (1986) found no significant main effect of hardiness and non-Hardiness X Stress interaction. Although some components of hardiness may ameliorate the negative effects of work and life stress, it is unclear what these components are, and whether they should be considered separately or treated as a single meaningful construct. Recent item and factor analyses suggest that only the original commitment and control subscales appear to intercorrelate highly and have direct effects on health (Hull et, al., 1987).

Only two known published studies have investigated the relationship between personality hardiness and measures of maladjustment and negative affectivity. A recent study by Funk et. al (1987) indicated that hardiness was significantly associated with maladjustment measures and that the effects of hardiness largely disappeared when maladjustment was statistically controlled. Their findings suggest that hardiness may be more strongly related to depression than to physical illness. Finally, in a recent study with 234 male highway patrol officers (Hills & Norvell, 1991), hardiness significantly contributed

incrementally to predictions of self-reported physical symptoms above that of neuroticism and perceived stress. Taken together, these studies provide limited support for the direct effects of hardiness on health outcomes and suggest that the hardiness construct may not simply be a measure of maladjustment or negative affectivity.

In light of the recent criticisms of the hardiness construct and research literature, this study was designed to compare an alternative measure of hardiness with the original Kobasa scales using a 3-year prospective design with both objective and subjective measures of health. Specifically, this study investigated the association between stress, composite and component personality hardiness scales, and an alternative cognitive hardiness scale with a cumulative measure of illness verified from personnel records, self-reported hospitalization due to injury/illness, and self-reported psychological well-being with 239 employees over a 3-year period. Consistent with previous research, it was hypothesized that personality hardiness would have direct effects on both subjective and objective health status.

PARTICIPANTS & PROCEDURES

The data utilized in this report were drawn from a 6-year longitudinal study investigating the predictors of job performance, stress resistance, and health in 340 employees. In 1983, 340 newly hired employees were administered a comprehensive battery of psychological questionnaires.

In 1983 and 1986, the same questionnaires were re-administered to the remaining employees. A total of 229 employees were left and included in the present sample for analysis. The subjects in this study were 69% male and 31% female with a mean age of 25.3 (S.D.=3.54). The sample of 229 full-time employees were 18.8% Black, 25.3% Hispanic, 3.9% Asian, and 52.0% Caucasian.

Measures

Independent Variables

1. Stress: Stress was measured using a six-item scale based on factor analysis procedures with the Hassles Scale (Kanner, Coyne, Schaefer, and Lazarus, 1981). This scale lists six categories of minor irritants of daily living including the areas of work, family, friends, the environment, practical considerations, and chance occurrences. It has demonstrated adequate internal consistency reliability (alpha .68) and criterion-related validity in recent studies (Nowack, 1989; 1991).

2. Hardiness: Two measures of hardiness were collected--the short form of the Kobasa Personality Hardiness measure (Kobasa, 1983) and the 30-item Cognitive Hardiness Inventory (Nowack, 1990). The Cognitive Hardiness Inventory has demonstrated adequate internal consistency reliability (alpha .83) and both construct and criterion-related validity in recent studies (Nowack, 1991; Nowack, 1990; Nowack, 1989).

The present, 30-item cognitive hardiness scale, is composed of attitudes and beliefs about work and life including: (1) Involvement--commitment, as opposed to alienation, to one's work, family, self, hobbies; (2) Challenge--attitudes around viewing life changes as challenges as opposed to threats; (3) Control--beliefs that one has a sense of control over significant outcomes in life. Respondents are asked to rate how strongly they agree with specific statements about their beliefs on a 1-5 scale ("strongly agree," "agree," "neither agree nor disagree," "disagree," "strongly disagree"). A sample item is: "My involvement in non-work activities and hobbies provides me with a sense of meaning and purpose." This scale demonstrated a high internal consistency reliability (alpha) of .84 in the present study.

Dependent Variables

1. Absenteeism: Absenteeism was measured by cumulative sick time verified from personnel records for each of the 229 employees over the 3-year study period.

2. Hospitalization: Hospitalization due to work-related illness or injury was measured by a single self-report item over the 3-year study period.

3. Psychological Well-Being: Psychological well-being was measured with a 12-item scale assessing overall work and life satisfaction. This scale has shown adequate internal consistency reliability (alpha) of .93 and criterion-related validity in recent studies (Nowack, 1990).

Respondents are asked how frequently they experience specific feelings on a 1 to 5 scale (1=Never and 5=Always). Sample items include: "Able to relax and enjoy yourself without worry;" "Feeling positive, confident, and secure with yourself;" and "Pleased with your life overall."

RESULTS

The intercorrelations among the research variables are shown in Table 1 below. Stepwise multiple regression analyses were used to explore the relative contributions of the two hardiness measures with the objective and subjective health outcomes. The first analysis compared the composite Kobasa measure of personality hardiness with the alternative measure and the second analysis compared the three sub-components of the original Kobasa scale (commitment, challenge, control) with the alternative hardiness measure. In all of the above, pertinent demographic variables (sex, age, race) were entered in the first step of the regression analyses.

Insert Table 1 About Here

PSYCHOLOGICAL WELL-BEING

Table 2 presents the results of separate stepwise multiple regression analyses with psychological well-being as the dependent variable. Relevant demographic variables (age, sex, ethnicity) were entered in the first step of the regression to control for the influence these variables may have on health. The independent variables of stress, commitment, control, challenge, and cognitive hardiness were entered using a stepwise method.

Insert Table 2 About Here

Stress ($F=3.96$, $p < .05$) and the cognitive hardiness scale ($F=47.38$, $P < .001$), but not any of the original Kobasa hardiness scales, significantly contributed to predictions of psychological well-being. Together, these variables accounted for over .19 of the variance in the dependent variable. Separate regressions were run with only the original Kobasa composite scores and subscale scores.

In these analyses, only the commitment ($F=20.57$, $P < .001$) and control scales ($F=5.96$, $P < .05$) significantly predicted psychological well-being three years later accounting for .11 of the variance in this dependent variable. A subsequent regression was also conducted with the overall Kobasa hardiness scale and the cognitive hardiness scale, controlling for the demographic variables included in this study. The cognitive hardiness, but not the overall Kobasa scale, significantly contributed to predictions of psychological well-being ($F=46.87$, $p < .001$).

ABSENTEEISM AND HOSPITALIZATION

Table 3 summarizes the separate stepwise regression analyses used to determine the predictors of absenteeism (cumulative sick time) verified by personnel records and self-reported hospitalization due to work-related injury or illness over the 3 year study.

Insert Table 3 About Here

Stress, but not hardiness, significantly contributed to predictions of absenteeism due to illness over the three year study ($F=5.15$, $p < .05$) accounting for only .02 of the variance in this dependent measure. With respect to self-reported hospitalization, only the cognitive hardiness, but not any of the Kobasa personality hardiness subscales, significantly contributed to work-related injuries or illnesses resulting in hospitalization over the 3 year period ($F=7.07$, $p < .01$).

A series of additional stepwise regressions analyses were conducted with all the Kobasa hardiness scales and physical health status. Neither the overall Kobasa composite personality hardiness scores, nor any of the subscale scores (commitment, control, challenge), significantly contributed to predictions of absenteeism (cumulative illness) or self-reported hospitalization due to injury or illness.

DISCUSSION

Among personal resources relevant to stress resistance, personality hardiness has received a great deal of attention. Previous research, however, has been largely limited to retrospective studies of self-reported illness that failed to take into account potential psychometric and theoretical criticisms of the Kobasa hardiness scales. The present investigation with 229 employees explored two measures of hardiness with both objective and subjective health measures over a 3-year period.

The alternative measure of hardiness, but not the Kobasa scales, significantly contributed to predictions of self-reported hospitalization and psychological well-being in this study over the 3-year study period. These findings provide limited construct and predictive validity for this alternative measure of hardiness but little evidence of the predictive validity of the Kobasa personality measures with health status in this study.

These results support the overall findings of Schmied et al., (1986) who reported no relation between composite hardiness and physical illness. In their study, only the measure of commitment (powerless scale) was related to health status. In the present study, only the commitment and control scales predicted self-reported psychological well-being over the 3-year period. Taken together, these findings may suggest that the Kobasa commitment subscale may be more strongly associated with negative affectivity in general, and emotional well-being in particular.

Some evidence for this interpretation comes from the analyses of Funk et al., (1987) who found that the shared variance in correlations between the hardiness scales and maladjustment measures used in their study could be largely attributed to the commitment (Powerless and Alienation from Work) subscales. In general, the Kobasa personality hardiness measures most likely have two components, one that is subjective and related to negative affectivity and the other that is more clearly health-related (cf., Watson & Clark, 1984; Watson & Pennebaker, 1989). The results of this longitudinal study do not appear to support a predictive relationship of personality hardiness with objective health outcomes. These findings support the contention of Funk et al., (1987) that the current concept of hardiness may not be well conceptualized and in need of revision.

The results of this study also support the findings of Hull et al., (1987) and Funk & Houston (1987) who suggest that the concept of hardiness is not well operationalized by the current Kobasa measures and that a composite measure of hardiness should not be used because it obscures the independent contributions of its subcomponents. It is strongly recommended that future hardiness research concentrate more on the specific components rather than emphasizing a composite hardiness score and consider using alternate measures of hardiness, such as the one included in this study. Additionally, future studies should employee a measure of negative affectivity to explore the unique relationship between commitment, control, and challenge and well-being.

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TABLE 1. Intercorrelations of the Scales (N=229)

Scale	1	2	3	4	5	6	7	8	9
1. Commitment		.02	.49**	.76*	.22**	-.42**	-.01	-.28**	.08
2. Challenge			.08	.53**	.07	.05	.00	.06	.06
3. Control				.75**	.29**	-.58**	.00	-.27**	.07
4. Hardiness					.29**	-.46**	.01	-.24**	.01
5. Stress						-.34**	.15	-.26**	.10
6. Cognitive Hardiness							-.09	.42**	-.17*
7. Absenteeism								-.12	.12
8. Psychological Distress									-.13
9. Hospitalization									

*p < .05. **p < .01.

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TABLE 2

Results of Multiple Regression Analysis with Psychological Well-Being as the Dependent Variables (N=229)

Variable	RSQ	RSQ Change	F
Kobasa's Hardiness Scales			
Commitment	.09	.09	20.57**
Control	.11	.02	5.96*
Kobasa Overall & Cognitive Hardiness			
Cognitive Hardiness	.17	.17	46.87**
All Dependent Measures			
Cognitive Hardiness	.17	.17	47.38**
Stress	.19	.02	3.96*

* $p < .05$; ** $p < .01$

Note: Dependent variables were stress, commitment, control, challenge, cognitive hardiness

TABLE 3

Results of Multiple Regression Analysis with Absenteeism & Hospitalization as the Dependent Variables (N=229)

Variable	RSQ	RSQ Change	F
		Absenteeism	
Perceived Stress	.02	.02	5.15**
		Hospitalization	
Cognitive Hardiness	.03	.03	7.07*

* $p < .05$; ** $p < .01$